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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,863	09/30/2003	David Alexander Russell	WEAT/0275	1881

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EXAMINER	
BELLAMY, TAMIKO D	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/675,863	RUSSELL ET AL.	
	Examiner	Art Unit	
	Tamiko D. Bellamy	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) *17-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 31-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/7/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 8/6/04. These drawings are accepted.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 15, 31, 32, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Ver Nooy (4,522,063).

Re claim 1, Ver Nooy discloses generating an interaction between a pipeline pig and the inner diameter of a pipeline (10) by passing a pipeline pig through the pipeline via means of a stepped wheel (28) generating vibrations within a pipeline (Col. 3, lines 25-35). Ver Nooy discloses generating data representative of an acoustic characteristic (e.g., frequency) of the pipeline from the interaction between the pipeline and the inner diameter of the pipeline. Ver Nooy discloses analyzing the data to determine a condition of the pipeline.

Re claim 2, Ver Nooy discloses the acoustical characteristic is a vibration frequency (Col. 4, lines 65-66).

Re claim 15, Ver Nooy discloses passing a pipeline pig through the pipeline using the axial motion of the pipeline pig to generate an interaction between the pipeline pig

and inner surface of the pipeline. Ver Nooy discloses generating data representative of the frequency response (e.g., frequency). Ver Nooy discloses analyzing the data to determine a condition of the pipeline.

Re claim 31, as depicted in fig. 2, Ver Nooy discloses passing a pipeline pig through the pipeline. Ver Nooy discloses interfering at least a portion of the pipeline pig with an inner surface of the pipeline. Ver Nooy discloses sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline (3, lines 25-36).

Re claim 32, Ver Nooy discloses using the vibration to infer a condition of the pipeline.

Re claim 35, Ver Nooy discloses sensing the vibration comprises sensing a vibration frequency (Col. 4, lines 65-66).

4. Claims 1-3, 9-15, 31, 32, and 35-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodcock et al. (5,540,096).

Re claim 1, Woodcock et al. discloses generating an interaction between a pipeline pig and the inner diameter of a pipeline by passing a pipeline pig through the pipeline via means of an impact source (110) impacting on the surface of the wall (102)(Col. 4, lines 26-32; 40-45). As depicted in fig. 3, Woodcock et al. discloses generating data representative of an acoustic characteristic (e.g., frequency/amplitude) of the pipeline from the interaction between the pipeline and the inner diameter of the pipeline. Woodcock et al. discloses analyzing the data to determine a condition of the pipeline (Col. 2, lines 15-41).

Re claim 2, Woodcock et al. discloses the acoustical characteristic is a vibration frequency (Col. 5, lines 29-36).

Re claim 3, Woodcock et al. discloses the acoustical characteristic is a vibration signal amplitude (Col. 5, lines 29-36).

Re claim 9, as depicted in fig. 3, Woodcock et al. discloses a first sensor encountering a physical condition of the pipeline (112) and a second sensor (114) encountering the same physical condition in the pipeline.

Re claim 11, Woodcock et al. discloses processing data resulting from the pig passing known structures in the pipeline.

Re claim 12, as depicted in fig. 2, Woodcock et al. discloses the known structures include joints (52) and bends.

Re claim 13, Woodcock et al. discloses identifying known patterns.

Re claim 14, as depicted in figs. 4 and 5, Woodcock et al. discloses identifying one or more known patterns comprises comparing the reference data to identify the signature represented by the reference data, wherein the signature represents known condition.

Re claim 15, Woodcock et al. discloses passing a pipeline pig through the pipeline using the axial motion of the pipeline pig to generate an interaction between the pipeline pig and inner surface of the pipeline (Col. 4, lines 26-32; 40-45). As depicted in fig. 3, Woodcock et al. discloses generating data representative of the frequency response (e.g., frequency/amplitude). Woodcock et al. discloses analyzing the data to determine a condition of the pipeline (Col. 2, lines 15-41).

Re claim 31, Woodcock et al. discloses passing a pipeline pig through the pipeline. Woodcock et al. discloses interfering at least a portion of the pipeline pig with an inner surface of the pipeline (Col. 4, lines 26-32). Woodcock et al. discloses sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline.

Re claim 32, Woodcock et al. discloses using the vibration to infer a condition of the pipeline (Col. 2, lines 15-41).

Re claim 34, Woodcock et al. discloses using the vibration to infer a condition of the pipeline comprises identifying a known condition by comprising data representative of the vibration to signature data representative of the known condition.

Re claim 35, Woodcock et al. discloses sensing the vibration comprises sensing a vibration frequency (Col. 5, lines 29-36).

Re claim 36, woodcock et al. discloses sensing the vibration comprises sensing a vibration signal amplitude (Col. 5, lines 29-36).

5. Claims 1-3, 7, 8, 11-14, and 31-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunt et al. (5,385,049).

Re claim 1, Hunt et al. discloses generating an interaction between a pipeline pig and the inner diameter of a pipeline by passing a pipeline pig through the pipeline via means of a shaker causing the pig to vibrate (Col. 1, line 57). Hunt et al. discloses generating data representative of an acoustic characteristic (e.g., frequency/amplitude) of the pipeline as the pig moves through the pipeline, and analyzing the data to determine a condition of the pipeline (Col. 1, lines 57-67).

Re claim 2, Hunt et al. discloses the acoustical characteristic is a vibration frequency (Col. 2, lines 52-53; Col. 3, lines 40-44).

Re claim 3, Hunt et al. discloses the acoustical characteristic is a vibration signal amplitude (Col. 3, lines 40-44).

Re claim 7, as depicted in figs. 6a-6d, Hunt et al discloses determining the position of the pipeline pig along the pipeline.

Re claim 8, as depicted in fig.1, Hunt et al. discloses analyzing a condition of the pipeline comprises filtering (35) the data (e.g., data goes into data logger 34) (Col. 5, lines 30-42).

Re claims 11-13, as depicted in fig. 6a, 6b, Hunt et al. discloses processing data to remove frequency responses resulting from the pig passing known structures in the pipeline. Hunt et al. discloses known structures including joints (J1, J2) and bends (Col. 1, lines 57-61; Col. 6, lines 63-68).

Re claim 14, Hunt et al. discloses identifying one or more known patterns comprises comparing the data to reference data to identify a signature represented by the reference data, wherein the signature represents a known condition (Col. 7, lines 7-19).

Re claim 31, Hunt et al. discloses passing a pipeline pig through the pipeline. Hunt et al. discloses interfering at least a portion of the pipeline pig with an inner surface of the pipeline. Hunt et al. discloses sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline.

Re claim 32, Hunt et al. discloses using the vibration to infer a condition of the pipeline.

Re claim 34, Hunt et al. discloses using the vibration to infer a condition of the pipeline comprises identifying a known condition by comprising data representative of the vibration to signature data representative of the known condition (Col. 7, lines 7-19).

Re claim 35, Hunt et al. discloses sensing the vibration comprises sensing a vibration frequency (Col. 2, lines 52-53; Col. 3, lines 40-44).

Re claim 36, Hunt et al. discloses sensing the vibration comprises sensing a vibration signal amplitude (Col. 3, lines 40-44).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4-7, 10, 33, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodcock et al. (5,540,096) in view of Bazarov et al. (6,772,637).

Re claim 4, Woodcock et al. discloses the device may be a wheeled sensing vehicle which is radially biased to engage the surface (102) for both rotational and axial movement with respect to wall (102) (Col. 4, lines 27-32). Woodcock et al. does not specifically disclose selecting a pig guide diameter, a seal diameter and seal thickness to generate vibration frequency data characteristic of an internal condition of the pipeline. As depicted in fig. 1, Bazarov et al. discloses pig having a selected pig guide diameter, a seal diameter (3), and a seal thickness. Therefore, to modify Woodcock et al. by

employing a pig guide diameter, seal diameter, and a seal thickness would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches an inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Woodcock et al. and Bazarov et al. since Woodcock et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

Re claims 5 and 37, Woodcock et al. discloses a wheeled sensing vehicle in a pipe. Woodcock et al. lacks the detail of controlling the speed of the pipeline pig. Bazarov et al. discloses controlling of the speed of the pipeline pig (See Cols. 4-8). Therefore, to modify Woodcock et al. by employing controlling the speed of the pipeline pig would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches a inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Woodcock et al. and Bazarov et al. since Woodcock et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline; and controlling the speed providing accurate data collection.

Re claim 6, Woodcock et al. discloses a wheeled sensing vehicle in a pipe. Woodcock et al. lacks the detail of collecting data for use in determining a speed of travel of the pipeline pig along the pipeline. Bazarov et al. discloses collecting data for use in determining a speed of travel of the pipeline pig along the pipeline (See Col. 7, lines 20-

47). Therefore, to modify Woodcock et al. by employing collecting data for use in determining a speed of travel of the pipeline pig along the pipeline would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches an inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Woodcock et al. and Bazarov et al. since Woodcock et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

Re claim 7, Woodcock et al. discloses a wheeled sensing vehicle in a pipe. Woodcock et al. lacks the detail of determining the position of the pipeline pig along the pipeline. Bazarov et al. discloses determining the position of the pipeline pig along the pipeline (See Col. 7, lines 45-55). Therefore, to modify Woodcock et al. by employing collecting data for use in determining a position of the pipeline pig along the pipeline would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches an inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Woodcock et al. and Bazarov et al. since Woodcock et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline. One would be motivated to monitor a particular position since some position/locations are more susceptive to defects.

Re claims 10 and 33, Woodcock et al. discloses a wheeled vehicle in a pipe. Woodcock et al. lacks the detail of determining the condition of the pipeline comprising

correlating two or more of frequency data, wherein the data represents the position of pig along the pipeline **and** the speed of travel of the pig. Bazarov et al. discloses collecting data for use in determining a speed of travel of the pipeline pig along the pipeline by measuring the distance traveled by the pig using two odometers (See Col. 7, lines 20-47). Therefore, to modify Woodcock et al. by employing collecting data for use in determining a speed of travel of the pipeline pig along the pipeline would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches an inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Hunt et al. and Bazarov et al. since Woodcock et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

8. Claims 4-6, 9, 10, 33, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al. (5,385,049) in view of Bazarov et al. (6,772,637).

Re claim 4, Hunt et al. discloses the device may be self-propelled (Col. 4, lines39-41). Hunt et al. does not specifically disclose selecting a pig guide diameter, a seal diameter and seal thickness to generate vibration frequency data characteristic of an internal condition of the pipeline. As depicted in fig. 1, Bazarov et al. discloses pig having a selected pig guide diameter, a seal diameter (3), and a seal thickness. Therefore, to modify Hunt et al. by employing selecting a pig guide diameter, seal diameter, and a seal thickness would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches a inspection pig having theses design

characteristics. The skilled artisan would be motivated to combine the teachings of Hunt et al. and Bazarov et al. since Hunt et al. states that his invention is applicable to monitoring the condition of a pipeline by traversing the interior of the pipeline with a pig and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

Re claims 5 and 37, Hunt et al. discloses a self-propelled pig. Hunt et al. lacks the detail of controlling the speed of the pipeline pig. Bazarov et al. discloses controlling of the speed of the pipeline pig (See Cols. 4-8). Therefore, to modify Hunt et al. by employing controlling the speed of the pipeline pig would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches a inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Hunt et al. and Bazarov et al. since Hunt et al. states that his invention is applicable to monitoring the condition of a pipeline by traversing the interior of the pipeline with a pig and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

Re claim 6, Hunt et al. discloses a self-propelled pig. Hunt et al. lacks the detail of collecting data for use in determining a speed of travel of the pipeline pig along the pipeline. Bazarov et al. discloses collecting data for use in determining a speed of travel of the pipeline pig along the pipeline (See Col. 7, lines 20-47). Therefore, to modify Hunt et al. by employing collecting data for use in determining a speed of travel of the pipeline pig along the pipeline would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches an inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings

of Hunt et al. and Bazarov et al. since Hunt et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

Re claim 9, Hunt et al. discloses a first sensor (51) encountering a physical condition in the pipeline and data collected from a second sensor (52) upon encountering the same physical condition in the pipeline.

Re claims 10 and 33, Hunt et al. discloses determining the position of the pig (See figs. 2, 5, 6a-6d). Hunt et al. lacks the detail of determining the condition of the pipeline comprising correlating two or more of frequency data, wherein the data represents the position of pig along the pipeline **and** the speed of travel of the pig. Bazarov et al. discloses collecting data for use in determining a speed of travel of the pipeline pig along the pipeline by measuring the distance traveled by the pig using two odometers (See Col. 7, lines 20-47). Therefore, to modify Hunt et al. by employing collecting data for use in determining a speed of travel of the pipeline pig along the pipeline would have been obvious to one of ordinary skill in the art at the time of the invention since Bazarov et al. teaches an inspection pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Hunt et al. and Bazarov et al. since Hunt et al. states that his invention is applicable to passing a pipeline inspection device through a pipe and Bazarov et al. is directed to an inspection pig passing through inspection pipeline.

Response to Remarks

9. Applicant's arguments filed 11/7/05 have been fully considered but they are not persuasive. It is the examiners position that claims 1-16, and 31-37 are not patentable. See above rejections numbers 1-8.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (571) 272-2190. The examiner can normally be reached on Monday - Friday 7:30 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamiko Bellamy
T.B.
January 23, 2006

CHARLES GARBER
PRIMARY EXAMINER